

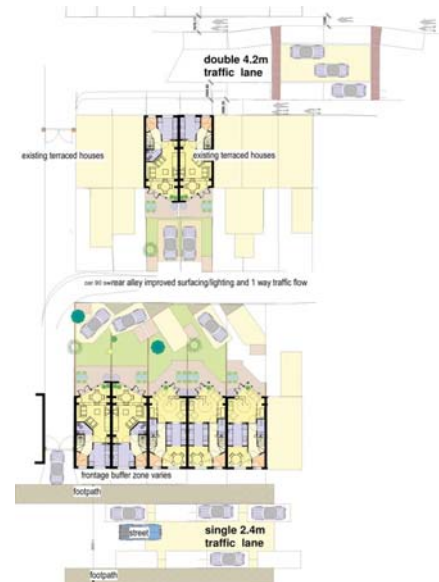


Eco Terraces

location:
Chesterton, Newcastle-under-Lyme
Staffordshire

The problems of refurbishing large numbers of older terraced properties in a sustainable manner is one faced by towns and cities the length and breadth of the United Kingdom. The 'ecoterrace' project in Chesterton near Newcastle-under-Lyme in Staffordshire is an ambitious transformation of six typical nineteenth and early twentieth century houses to meet today's housing standards and to provide a workable template for future refurbishment programmes.

The Chesterton ecoterrace project gained national recognition when it won the 'Building 99% Campaign Award for Refurbishment' at the 2008 Sustainability Awards. The project was also shortlisted for the CIH Housing Awards and Inside Housing magazine's Sustainability Awards.



Introduction

Chesterton is characterised by pre-1919 terraced houses and has suffered from a lack of investment to its predominantly private sector stock. There are a number of empty properties and failing retail units and is classified as an area of general renewal by the Renew, the housing market renewal pathfinder. The six houses that were selected for the programme were recent acquisitions of Staffordshire Housing Association.

The ecoterrace project was designed to demonstrate how these traditionally energy inefficient houses could be turned into modern, energy-efficient homes designed for the way that people live today. Importantly the project was intended to inform how similar refurbishment programmes might be replicated elsewhere. Partners on the project were Staffordshire Housing Association, Newcastle-under-Lyme Borough Council, Axis Design Architects and the Housing Corporation.

Design process

The six houses selected for the demonstration project are each different but each was remodelled using a set of core design principles:

- External changes to the front of the properties are minimal with the emphasis placed on retaining the grain and integrity of the streets.

- Radical alteration to the rear of the houses with the removal of all single storey rear outriggers, bringing kitchen/utility and bathroom spaces into the centre of the plan, rationalising the serviced spaces and improving the aspect of all major rooms.
- The creation of a range of sunspaces, some two storey in height and angled to improve solar orientation, are integrated into the designs. Extensive glazing to the rear helps to deliver sunlight deep into the living space and also serves to open up a direct physical and visual connection to the rear garden areas, increasing the utility of these often neglected outside spaces.
- The increased glazing and the resultant lighter and airier interior atmosphere is very different to the often overshadowed darker backrooms of terraced houses. This makes the homes more desirable to new residents in an area of poor housing market performance.
- Where possible the ground floors feature a downstairs toilet provision and utility cupboards separating laundry and clothes drying from the open plan living areas.
- The provision of roof glazing and galleried living to the upper floor bedrooms increases the scale and variety of space within very restricted floorplans, combining the attractiveness of largely glazed rooms with the added bonuses of free heat and space to dry the laundry.

Alongside the design principles above the ecoterraces are also underpinned by the three C's:

- Carbon reduction - The eco terraces project houses from existing EPC banding of G (102kg/m² carbon emissions) are improved to EcoHomes Very Good (EPC band B) or Excellent (EPC band A), a carbon saving of close to 5 tonnes per annum(24kg/m²) per house.
- Cash saving - The 3 million poorest quality houses have an energy rating of 30 and below and annual space heating costs from £800 to £1200. Ecoterrace houses aim to reduce heating costs to below £200 per annum.
- Comfort and lifestyle - This is a softer issue but nevertheless significant, since apart from the issue of fuel poverty, these homes if unimproved, present serious health and welfare challenges. Ecoterrace houses aim to be more comfortable and desirable than conventional refurbished homes, otherwise residents will not choose to buy into them.

Evaluation

The remodeled ecoterraces are light and airy with a distinctly different feel to that of a traditional terraced house and the two homes that have been completed and assessed at the time of writing have achieved Eco Homes 'eco-excellent' standard, a level only reached by the most environmentally sound properties.

The refurbishment demonstrates outstanding energy preservation, minimal pollution, use of sustainable building materials, transport and land-use and water conservation. The bulk of the fabric of the building was retained and reused, with the same roof tiles being re-laid after re-felting for example. Flow regulators are placed on all taps, low energy lighting is used throughout and high efficiency boilers have been installed. Additional



measures included adding insulation to the walls, floor and roof and a Sunwarm system on the roof that uses solar energy to heat air and water for the home. Crucially the homes have been fitted with sophisticated monitoring equipment so that their ongoing efficiency can be closely monitored, this will be undertaken by Axis Design Architects and the Hockerton Housing Project consultancy.

The most impressive aspect of the ecoterrace project is undoubtedly the commitment of the design team to sharing its ideas and experiences with the rest of the world. A website – www.ecoterrace.co.uk has charted the scheme's progress, with regularly updated information, various images and a blog. The commitment to using the project as a learning tool is also exemplified by the two-year monitoring programme that is assessing the value of the changes introduced.

Key design features to look out for

- The light and airy feel of the ground floor in particular made possible by the extensive glazing to the rear elevation.
- The attractive rear garden spaces made possible by the removal of the single storey outriggers.
- The way that they do not detract from the existing urban environment, the fact that they are difficult to spot along the street belies the radical remodelling that has gone on behind the historic façade.



Link and downloads

Website charting the progress of the Eco-terraces: <http://ecoterrace.co.uk/>

Staffordshire Housing Association: <http://www.staffshousing.org.uk/>

Axis Design Architects: <http://axisdesignarchitects.com>

Renew North Staffordshire: <http://www.renewnorthstaffs.gov.uk/>

Hockerton Housing Project: <http://www.hockertonhousingproject.org.uk/>

Location Plan

<http://maps.google.co.uk/maps?f=q&hl=en&geocode=&q=booth+street+chesterton&sll=53.800651,-4.064941&sspn=14.253717,46.582031&ie=UTF8&ll=53.035252,-2.240696&spn=0.007071,0.022745&z=16>

Building Article http://www.building.co.uk/sustain_story.asp?sectioncode=749&storycode=3113928&c=2

Contact for further information

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